

branchiæ; *d*, lower mantle; *e*, *e'*, *e''*, arrows showing currents entering the cavity of the mantle (*l*); the arrow (*l*) also marks the food-bearing currents tending towards the mouth; *h*, intra-bran- chial or anal cavity; *g* is that portion of the pallial membrane which stretches from the proximal border of the upper branchial lamella to the side of the visceral mass, thus shutting in com- pletely the intra-bran- chial cavity; *j*, the excurrent.

Fig. 13. Ideal transverse section of the preceding figure: *a*, mouth; *b*, ge- neral cavity of the mantle; *c*, openings between the valves (*f*, *f'*) of the mantle; *g*, membrane uniting the branchiæ with the mantle, and dividing the pallial chamber (*c*) from the intra-bran- chial cavity (*e*); *d*, the anus.

[To be continued.]

V.—Notes on the Ornithology of Ceylon, collected during an eight years' residence in the Island. By EDGAR LEOPOLD LAYARD, F.Z.S., C.M.E.S. &c.

[Continued from vol. xiii. p. 453.]

205. TRERON BICINCTA, Jerd. *Bata-goyā*, Cing. *Patchy-prāā*, Mal., and *Groëne-duyven* of the Dutch descendants; lit. Green Dove.

Very abundant in the south of the island and in the mountain zone, where it is mingled with *T. Malabarica* vel *T. Pompadoura*, Gmel. Towards the extreme north it is seldom met with, though I have killed a few specimens in the Patchellepally. In the neighbourhood of Pt. Pedro I never saw it, its place being filled by the larger *T. chlorigaster*, Blyth.

This Pigeon never alights on the ground, but seeks its food, which consists of berries and small fruits, on the highest trees; it always feeds in flocks, and vast numbers are killed in the southern and western provinces by noticing what trees are in fruit, and watching at their foot for the birds which are continually going and coming. It however feeds so silently and moves so seldom, that it requires much skill to detect a single bird out of a flock of fifty or sixty, and on the least alarm, which is communicated from one to another by a plaintive whistle, they all dart off the tree as if by magic; frequently, on firing at a bird which has exposed itself, I have brought down seven or eight others which I could not see.

It forms a nest in the month of May, of sticks, with a very slight lining of roots, &c. in the fork of a tree, and deposits two shining white eggs. Axis 14 lines; diam. 10 lines.

206. TRERON CHLORIGASTER, Blyth.

Confined to the extreme north of the island, where it is very

abundant, feeding on the fruit of the banian tree. It is migratory, only appearing in the fruit season, and returning again to the coast of India.

The Tamuls and Cingalese apply the name of "*patchy-praa*" (Green Dove) and "*bata-goya*" indiscriminately to all our Trerons. The words *prāā* and *goya* are synonymous and used for all pigeons.

207. TRERON MALABARICA ? Jerdon.

Var. *Pompadoura*, Gmel. (Brown's Ill. Pl. 19, 20.)

I procured this species in abundance in the mountain zone, at the top of the Balcaddua Pass, and at Ratnapoora. It feeds on berries, and flies in large flocks. Our Ceylon race is slightly different from the true *T. Malabarica*, and I believe it to be the origin of Brown's wretched figures (plates 19 & 20). My lamented friend Mr. Strickland was satisfied with this view of the case, and intended offering some remarks on these plates and several others which represent Ceylonese birds, but which have hitherto not been satisfactorily identified. I regret that I have not a copy of the work to refer to, and detail as fully as my memory serves me, the conclusions to which we came upon most of them.

208. CARPOPHAGA PUSILLA, Blyth, J. A. S. xviii. *Mahavillagoya*, Cing. *Matabatagoya* of the Cingalese to the north of Kandy. *Berg Duyven*, Dutch ; lit. Hill Dove.

Mr. Blyth separates this species and those from the Nilgiris from Tickell's *Columba sylvatica*, under the name of *C. pusilla*. Mr. Strickland was inclined to agree with him, but wished for a larger series of specimens than those I had by me for comparison.

Our birds extend northward and southward into the low country, but their great haunt is certainly the mountain zone, though, from Dr. Kelaart's observations, it does not appear to have been seen "in very high lands," and the *Mahavillagoya* of Nuwera Elia is another species, *C. Torringtonii*, Kelaart.

They are very migratory, only appearing with the ripe fruit of the banian, teak, and other trees, on which they feed : at this time they congregate in hundreds in places where previously not a specimen could be procured.

209. ALSOCOMUS PUNICEUS, Tickell. *Neeyang cobeya*, Cing. ; lit. Season Pigeon, from its being essentially migratorial.

This bird is but rarely a visitant of our island ; I believe it ap-

pears during the fruiting of the cinnamon trees; the natives all assure me of this; but there is another bird called *Kurrundoo cobeya*, i. e. *Cinnamon Dove*, which is confused with it, or else this has two names. A relative of mine, however, who was formerly in charge of the Government Cinnamon Department, informs me that many years ago, when the south of the island was not so much cultivated as at present, there used to arrive at the fruiting season, flocks of a small pigeon which fed on the cinnamon, and which he could not identify with any I showed him; he called them *Kurrundoo cobeya*, and said he had not seen any of late years. I have sometimes thought this might prove to be *Treron aromatica*, Gmel.

210. CARPOPHAGA TORRINGTONII, Kelaart. *Mahavillagoya* of the Ceylonese Mountaineers, apud Kelaart.

Mr. Blyth is disposed to consider this as only a variety of *C. Elphinstonei*, Sykes, of the Nilgiris, but Mr. Strickland at once pronounced it to be distinct; if so, Dr. Kelaart's name will stand.

Not having seen it alive, I must refer to his 'Prodrromus Faunæ Zeylanicæ' for particulars of its habits; he says (page 108)—“It is an arboreal species seen only in pairs; flies high and in long sweeps: their nests are formed on lofty trees.”

211. COLUMBA INTERMEDIA, Strickland.

This species is extremely local, being confined to two places, “Pigeon Island,” off Trincomalie, and a rock off the southern coast near Barberry. From these it, of course, makes incursions into the interior, and I have heard of specimens being shot at Vavonia-Vlancolom, on the great central road, about fifty miles from Trincomalie.

212. TURTUR RISORIUS, Linn. *Cally-prāā*, Mal.; from their frequenting the Euphorbia hedges called “*Cally*” by the Malabars. *Ringel Duyven* of the Dutch descendants.

Extremely abundant in the northern province, and indeed wherever the country is favourable to the growth of the *Euphorbia antiquorum*. It breeds in the spring, fabricating a loose, careless nest, of small twigs, in the Euphorbia trees, in which it deposits two oval and shining white eggs. Axis 14 lines; diam. 11 lines. While residing in the north, or in my jungle trips, I found them a wholesome and pleasing addition to my table, frequently killing from twenty to thirty of them and of *T. Suratensis* in two or three hours.

213. *TURTUR SURATENSIS*, Lath. *Mani-prāā*, Mal.; lit. Bead-
Dove, from the bead-like spots on the neck. *Cobeya* and
Allo cobeya, Cing.

Equally abundant with the preceding in the same localities, but found also in the central province and wooded portions of the southern districts. In its nidification it is similar, and the eggs are only distinguishable by their size, having an axis of 12 lines and a diam. of 9 lines.

The flight of both these pigeons during the love season is most elegant and graceful; the male bird will at such times soar away from the branch on which his "meek-eyed" partner is reposing to a considerable altitude, rising almost perpendicularly and clapping his wings together over his back, then opening them and spreading his tail he sails downward in decreasing circles and graceful curves to the object of his affections, who greets him with the tenderest and blandest cooings, and while he struts and pouts before her caresses his head and wings with her bill. The fervour of their love being assuaged, away they both soar in the fulness of their joy, to descend again in undulating curves, crossing and recrossing each other with the most easy and graceful flight, to the more sober and matter-of-fact work of collecting building materials for the nest.

214. *TURTUR HUMILIS*, Temm.

The fertile portion of the Pt. Pedro district is separated from the neighbouring divisions of Malagam, Jaffna, and Chavagacherry, by a plain of several miles in breadth, in the centre of which, during most parts of the year, is an expanse of shallow brackish water; in the hot season this mostly dries up, in some places leaving a rich deposit of native salt (from the sale of which a large portion of the revenues of the northern province is derived); in others not so impregnated with the saline particles and sooner dry, the natives raise crops of paddy and other grain; in others (reclaimed by embanking) topes of palmirahs have been planted. Far away from other cultivation, and in the centre of the plain between Tunale and Warennny, stands one of these topes, numbering perhaps two dozen palms and margosas; a few banyan trees, planted doubtless by some vagrant dove, have taken root and circled some of them in their deadly embrace; a well of brackish water, a ruined temple, and a native hut, complete the picture of this "oasis in the desert." Government duty led me one morning to this spot soon after the waters had subsided: part of my walk had been over parched mud sparkling with saline incrustations, which rendered the glare almost insupportable; at one place the people with me had carried me through water up

to their arm-pits, and for the last two miles I had trudged along over the remains of paddy-fields, now dry and dusty, under the burning sun, without a tree or a bush to shelter me; my dogs trailed their tails and drooped their heads, with straining eyes and outstretched tongues, and even the ordinarily garrulous natives were silent, oppressed by the intolerable heat; the mirage deluded us with its pictures of limpid water and tall trees, my spirits almost sank, and I thought I never should reach the trees before us in the distance. How willingly would I, had I been a litigant for that miserable tope, have resigned it, rather than have taken the trouble to walk to it! Suddenly—the first living thing I had seen for hours—a pigeon darted past us in full flight towards the tope; I hardly cared to look at it with my half-closed aching eyes, but its pink-coloured back and small size at once roused me—it was something new! O, how eagerly I watched its flight to that now coveted tope, and longed to be there! The natives knew of no other species but the “Cally and Mani-prāās,” and stoutly maintained there were none; I was equally positive the bird that flew by was neither of *them*, and hurried forward, thirst and heat were alike forgotten; and when I reached the spot, instead of partaking of the cocoa-nuts which the head-man’s forethought had provided there for me, I sprang on the low wall and peered eagerly among the trees. *Turtur Suratensis* and *T. risorius* perched about the branches in abundance, and—could I believe my eyes?—on a dry leafless “matty” projecting from a palmirah tree, and supporting the twigs of a nest, sat a pair of the lovely little *T. huxalis*; there they were, “billing and cooing,” in sweet but dangerous proximity, for the same shot laid them both dead at my feet, and in another minute a native lad who had followed me brought down two shining, smooth, white eggs from their nest. This was not the only pair in the tope, and I soon procured half a dozen specimens, and might have killed as many more. An old head-man who was with me, and who had the reputation of being the best sportsman in my district, assured me he had neither seen nor heard of this description of pigeon before; and so said all present, some of them old men who had spent their lives in that neighbourhood. I had lived more than a year in the district and killed dozens of doves without finding one, nor did I ever after, though I often shot along the cultivation, at the edge of the plain, meet with them. Had they bred there that year only? where did they come from? why did they select that lonely tope and keep so closely to it? I left the district and never could learn, nor did I ever find any native who had met with them in other parts of the island. Dr. Kelaart knew nothing of it, and only included it in his list on Mr. Blyth’s authority, and I furnished the latter with data;

so whether the little colony raised their young and departed, or breed there still, "remains an untold tale."

215. TURTUR ORIENTALIS, Lath.

I shot a young bird of this species from a small flock of pigeons which flew over my head as I was travelling with the late Dr. Gardner in the Pasdoom Corle in the month of December 1848.

216. CHALCOPHAPS INDICUS, Linn. *Nillo- or Nil-Cobeya*, Cing.; lit. Blue Dove.

The "Ground Dove" of Europeans seems not to extend northward further than Kodally Kallu on the eastern, and Putlam on the western sides; at least I never met with it beyond, and the Tamuls have no name for it. About Colombo and all through the wooded southern and central provinces it is abundant. It is generally found on the ground, walking hastily about and picking up seeds; being a bold, fearless bird of great power of wing, it will permit approach to within a few paces, when, with a spring into the air, it will dash onwards a few dozen yards, and again settle; a renewed approach drives it further off a second and a third time, till driven beyond the range of its food, the lovely bird will dart back to its old feeding ground with the rapidity of thought, often brushing the intruder's person with its wings, while following the tortuous narrow windings of the native path. It is principally abroad morning and evening, when its plaintive *lowing* "coo" may be heard from almost every thicket. In such situations they breed, laying two oval yellowish drab-coloured eggs. Axis 12 lines; diam. $8\frac{1}{2}$ lines.

217. PAVO CRISTATUS, Linn. *Monara*, Cing. *Miyil*, Tam. *Pavaan*, Port. *Mayal*, Dutch.

Abundant in the mimosa jungles of the maritime districts, but rare in the hills. They feed in flocks during the mornings and evenings, and roost in trees, on which they may be seen at daybreak expanding their tails and wings to dry.

218. GALLUS STANLEYI, Gray. *Kadoo-koly*, Mal. *Wellekukullo*, Cing.; lit. Jungle Fowl. *Wild-Hoën*, Dutch. *Galienha di Matoe*, Port.

The Jungle fowl is abundant in all the uncultivated portions of Ceylon, but particularly so in the northern and north-western provinces.

It comes out to feed morning and evening, upon the roads, cultivated lands, or other open places. The cocks are generally

seen alone, seldom in company with their hens, who, however, are always in the neighbourhood, and keep together, even though their broods may be of very different ages.

The cocks fight most desperately in defence of their seraglios, the combat frequently terminating in the death of one of the engaged parties. As they not unfrequently mingle with the fowls of the lonely villages, they cross with the domestic breed, being more than a match in courage for the plebeian dunghill cocks, and armed with tremendous sharp spurs.

Mr. Mitford, of the Ceylon Civil Service, showed me, while at Ratnapoora, a hybrid hen; her general appearance and call much resembled that of the wild bird; her eggs also partook of the spotted character, but Mr. Mitford never succeeded in rearing any chicks from them, as they were always addled. The bird was very tame to those with whom she was acquainted, but fled precipitately at the approach of strangers.

The hen selects a decaying stump or thick bush for a nesting place, and lays from six to twelve eggs, of a fine rich cream colour, finely mottled with reddish brown specks. Axis 1 in. 9 lines; diam. 1 in. 4 lines. The young when just hatched resemble young chickens, and the old mother leads them to decaying prostrate trees, and scratches for white ants, which they eagerly devour. They are hatched in June.

In wet weather, Jungle fowl keep much to thick trees, sitting disconsolately with drooping head and tails among the branches; they also roost in trees at night, retiring to rest early. It is rarely that a bird can be flushed, but when they do fly, it is very much in the manner of the pheasant; they run with incredible swiftness, and trust to their powers in this respect for safety. Their cry is a short crow, which resembles the words "George Joyce," sharply repeated.

It may not be out of place here, while upon the subject of Jungle fowl, to mention the varieties of domestic breeds which are found in the island.

The usual kind is the common fowl, which is considerably less than the English breed, and lays a much smaller egg; it runs through all the same variations of plumage; but there is one curious variety, which I cannot describe more aptly than by comparing it to a white fowl drawn down a sooty chimney. On preparing one of these fowls for the table, at which, by the way, they excel all others in flavour and tenderness, the skin and peristomium are found nearly black; the roof of the mouth, tongue, wattles, and legs are also of a deep leaden hue. It is a remarkable fact, that a male bird of the pure sooty variety is almost as scarce as a tortoise-shell tom-cat.

The Cingalese call these fowls "*Calloo-mas-kukulo*," literally

black-flesh-fowl. *Kukula* means cock (or *fowl* taken as a whole); *kikili*, hen; *kukulo*, plural, fowls.

The ingenious and learned author of 'Ornamental and Domestic Poultry*', at page 392, second edition, refers to these fowls as having *silky feathers*, but with us in Ceylon this is not the case.

The FRIZZLED or FRIESLAND FOWL, of the same author (p. 394), is also domesticated in Ceylon, but it is rare; the Cingalese called it *Capri-kukulo*, and say it was originally imported from Batavia. This accords with Temminck's statements.

The RUMPLESS FOWL, or RUMKIN (*ibid.* p. 387), is also plentiful, but only in a domestic state. Temminck's assertion that it is a wild inhabitant of the island is surely a mistake, and the Governor (Loten, I presume) who forwarded him the information must have been deceived by some head-man or other. I am quite confident the bird does not exist wild in Ceylon; the very native name, "*Cochi-kukulo*," *Cochin-fowl*, implies its foreign character.

The COCHIN CHINA FOWL (*ibid.* p. 289) and MALAY FOWL (p. 299) are both found in Ceylon; the former is called *Mahacochi-kukulo*, or "*large Cochinchina Fowl*," and is common enough. I have purchased them for $7\frac{1}{2}d.$ each, while residing at Pt. Pedro; I mention this as a contrast to the absurd prices given in England. The Malay fowl is principally found about the lines of the native regiment of Ceylon Rifles; they belong to the Malays, and are used in fighting, a sport of which that people, as well as the Cingalese and Tamuls, are passionately fond. I, however, never saw the true game cock in Ceylon.

CREEPERS (p. 384) are frequently met with; their curiously short legs at once distinguish them from the common breed. One variety has feathered legs, but I never met with true Bantams.

The POLAND or POLISH FOWL (p. 364) was introduced many years ago by a relative of my own, the original birds having been procured from my father.

I am not sufficiently acquainted with all the varieties of domestic fowls to state if other kinds are found in the island; probably some which I have called "*common fowls*" may be more valuable varieties.

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[To be continued.]